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NATIONAL FOREIGN INTELLIGENCE BOARD

109

NFIB-D-71.2/1

21 January 1977

MEMORANDUM FOR THE NATIONAL FOREIGN INTELLIGENCE BOARD

FROM : Walter Elder
Executive Secretary

SUBJECT : Standards for Microfiche Copies of Intelligence Documents

REFERENCE: DCID No. 1/4 dated 18 May 1976

1. Attached for your consideration is a copy of the subject report as well as a memorandum from the Chairman of the DCI's Intelligence Information Handling Committee (IIHC) that cites the committee's approval of the standards.

2. Your concurrence in or comments on publishing this document as an attachment to DCID 1/4, which describes the mission and functions of the IIHC, is requested. Please notify the Secretariat ( ) by close of business 2 February 1977 of your concurrence or comments.

STATINTL

STATINTL

Walter Elder

Attachment:
A/S

NFIB-D-71.2/1
21 January 1977

DIRECTOR OF CENTRAL INTELLIGENCE
Intelligence Information Handling Committee

MEMORANDUM FOR: Executive Secretary, NFIB

STATINTL FROM : [redacted], Chairman
Intelligence Information
Handling Committee

SUBJECT : NFIB and DCI Approval for
"Standards for Microfiche
Copies of Intelligence Documents"

1. Attached for NFIB consideration is a document dealing with the subject "Standards for Microfiche Copies of Intelligence Documents." These standards have been agreed upon by the IHC Micrographics Working Group for use by all members of the Intelligence Community who produce and disseminate microfiche copies of intelligence documents. Through vote sheet action on 23 December 1976, all members of the DCI Intelligence Information Handling Committee have approved these standards.

2. I request that you circulate this document to the NFIB in order to gain approval to publish this document as an attachment to DCID 1/4, which describes the mission and functions for the DCI Intelligence Information Handling Committee. STATINTL

[redacted]

Att

(19 January 1977)

NFIB-D-71.2/1
21 January 1977

Intelligence Community Standards

for

Microfiche Copies or Intelligence Documents

FOREWORD

These standards have been developed to provide a uniform microfiche to facilitate exchange of intelligence information among members of the intelligence community. They prescribe formats, pagination, titling, and materials to assure compatibility among products of all producing agencies and apply only to those microfiche produced for use outside the originating agency; they do not apply to microfiche applications for internal use of a member agency.

The 98 frame format has been chosen as the standard for camera created microfiche and the 98 or 420 frame format as the desired standard for COM generated microfiche.

Existing systems are not required to convert. However, systems not using these formats should be evaluated periodically to weigh the merit of conversion.

Uniform application of these standards will be mutually beneficial to members of the intelligence community and will permit both producers and users to procure microfiche production and viewing equipment with assurance of future usability.

STANDARDS FOR MICROFICHE COPIES OF INTELLIGENCE DOCUMENTS

1. SCOPE: These standards cover camera-created and COM generated microfiche copies of intelligence documents and indices. Production of microfiche to these standards will facilitate exchange of microfiche within the intelligence community and minimize consumer equipment requirements.

2. FORM: Microfiche copies of intelligence documents and indices will be produced to conform with national and international standards for 24:1 and 48:1 reduction ratios with frame packing densities as follows·

PAGE SIZE / REDUCTION	DESIRABLE 8 x 10 1/2	ACCEPTABLE 14 x 11
24X	98	63
48X	420	270

The 14 x 11 page size is primarily for 132 character COM output. It is expected that as existing ADP routines are reprogrammed, COM outputs will be made to produce the 420 frame format.

a. Sheet Size: The external dimensions will be 105mm by 148mm (4" x 6"). Tolerances are plus 0mm in both dimensions or minus 0.75mm for the shorter dimension or minus 1.00mm for the longer dimension.

b. Orientation: The longer dimensions are designated the top and bottom. The shorter dimensions are designated the sides. The bottom is the reference edge and the bottom left corner is designated the reference corner.

c. Corner Cut: The top corner may be cut as shown in figure 1 to facilitate orienting microfiche in files and viewers.

d. Film Stock: Only safety film stock as defined by American National Standard PH1.25-1975, or latest revision thereof, will be used for microfiche.

e. Film Thickness: The gross thickness will be:

(1) For Cellulose Acetate Base: 0.13mm - 0.23mm (0.005" - 0.009")

(2) For Polyester Base: 0.10mm - 0.23mm (0.004" - 0.009")

f. Rectangularity: Each side of the microfiche will be perpendicular to the bottom (reference) edge within ± 0.13mm (0.005") for each 25mm of height.

g. Cutting Mark: A cutting mark to provide for automatic cutting of processed roll film into microfiche is optional. If used, the cutting mark will be a 3.0mm square, and the center of the cutting mark will be located on the bottom edge 32.0mm ± 0.2mm from the left corner.

h. Sensitive Layer Notch: The use of a notch to identify the sensitive layer is optional. If used, the notch will be on the right edge near the bottom corner when the microfiche is oriented as shown in figure 1. The notch is useful for orienting sheet film when duplicating microfiche. When sheet film is oriented with the longer dimension in the vertical and the notch in the top right corner, the sensitive layer is toward the beholder. If used, the notch will comply with American National Standard PH1.19-1974, or the latest revision thereof.

i. Corner Rounding: Rounding of corners is optional. If rounded, the process will not remove more than 3mm of either of the two edges forming the corner.

3. FORMAT: The four microfiche formats are depicted in figures 1 through 4. There is a 12.5mm x 100mm heading area, and a 4mm margin along the bottom and both sides for cutting mark, sensitive layer notch, and corner rounding. The top margin is 1mm.

a. Frame Identification: The first row below the heading area is designated row A, the second row B, and so on. The first column adjacent to the left edge is designated column 1, the second column 2, and so on. The row and column identifiers are combined to identify the frame. Thus, C4 is the third row and the fourth column.

b. Centering: Microimages will be centered within the frame. Where confronted pages of bound volumes are photographed, the gutter will be centered within a double frame.

c. Reduction: Typed and printed letter-size documents (203 x 279mm, 8 x 11 inches) with elite (10 point) or larger size type will be copied at 24X reduction. Larger documents may be filmed at greater than 24X reduction provided the document will be legible when blown-back with nominal 24X viewing equipment. Documents with small lettering or requiring high resolution may be filmed at lower than 24X reduction in order to improve legibility when blown-back with nominal 24X viewing equipment.

d. Sectionalizing: Documents that are too long to fit in one frame must be sectionalized. When documents are sectionalized, there will be at least 1 inch overlap and the sequence of filming will be from left to right and top to bottom.

4. Heading: Each microfiche will have a heading that is readable without magnification. The following standards are established for preparation of heading data for microfiche of intelligence documents/material intended for exchange within the intelligence community. Headings for Computer Output Microfilm (COM) will conform to these standards within the limitations of the equipment. See sample headings at figure 5.

a. The first line of the heading, reading left to right, will contain the document short title or number, the security classification and dissemination controls (commencing at a point not less than 18 spaces from the left), followed by the title. The security classification/dissemination controls and subject will be separated by two dashes (--). The abbreviated classification of the title will be shown in parentheses following the title where applicable, i.e., (U), (C), (S). Row A of the fiche may be used to provide additional area for security and special handling markings for compartmented materials if the normal heading area does not provide sufficient space. Standard abbreviations/codes may be used for handling caveats, control markings, and distribution restrictions. Security classification and code words will not be abbreviated. "Unclassified" or "For official use only" must be used, if applicable.

b. The second line of the heading will contain the microfiche unique identifier, if used. If a unique identifier is not used, the space will be left blank. The unique identifier will consist of a three-character producer identifier, as established by appropriate agency regulations (approved in advance by the IHC to eliminate duplication), a two-character year of production, a single alpha space for compartment identifier, and a six-digit sequence or accession number. Each component of the unique identifier will be separated by spaces, dashes, or slashes for ease of reading.

(1) Compartment identifiers referred to above are:

(a) C - Collateral and unclassified

(b) S - SI

(c) T - TK

(d) X - other compartmented information

(2) Series identifiers may be established to distinguish between microfiche produced for various purposes. If used, they will be placed in parentheses following the sequence number. The title will be continued directly below the first letter of the classification.

c. The third line will contain the document originator, using abbreviations and acronyms when appropriate, followed by the document date on the left side. The document date will show the day, month, and year as follows: 11Apr76. The title may be continued on the third line, if necessary, directly below the first letter of the classification, the lower right 50mm of the 3rd line of the heading will be reserved for optional entries at the discretion of the producers.

d. Exact placement of the document identifier (short title), classification and dissemination controls, microfiche unique identifier, document long title, document producer and publication date will be mandatory.

e. Trailer Microfiche: When trailer microfiche are required, the heading will be repeated on each microfiche in the set.

f. Document Description: The document short title, producer, date of document, classification and title will be as described above.

5. Microfiche envelopes, if used, shall be plain white for unclassified material. For classified collateral material the white envelopes shall be overprinted with a 3/4" solid-colored border on both sides to denote the level of classification as follows:

CONFIDENTIAL - Blue

SECRET - Red

TOP SECRET - Yellow

In addition the front of each envelope will carry a warning triangle pre-printed with the statement, "NATIONAL SECURITY INFORMATION - UNAUTHORIZED DISCLOSURE SUBJECT TO CRIMINAL SANCTIONS". The statement and triangle shall be of the same color as the borders. Envelopes containing certain compartmented material will be white with 3/8" border of 1/8" diagonal stripes front and back to indicate compartments, a warning triangle, pre-printed with the words: WARNING NOTICE - SENSITIVE INTELLIGENCE SOURCES AND METHODS INVOLVED - NATIONAL SECURITY INFORMATION - UNAUTHORIZED DISCLOSURE SUBJECT TO CRIMINAL SANCTIONS, and the statement "This envelope contains (appropriate diagraph or trigraph) material," as follows:

COMPARTMENT	COLOR CODE
SI	Red diagonal stripes
TK	Black diagonal stripes
SI/TK	Red/Black diagonal stripes
STATINTL SI/TK/[ ]	Green/Red/Black diagonal stripes

The warning triangle and statement shall be printed in the same color as the most restrictive compartment. All envelopes are to be 6-1/8" in the longest dimension.

6. PAGINATION: The microimages will be sequenced for viewing from left to right and from top to bottom, except COM producers whose equipment will not permit horizontal pagination. Pagination will be for the convenience of the viewer rather than the microfiche producer. Therefore, when feasible, documents will be right heading when copied, on the assumption the ultimate user has an inexpensive viewer without rotation.

a. The first frame of the first row of microimages will be dedicated as a clear blank space so that agencies other than the original producer may enter their own number for additional production and distribution.

b. The second frame of the first row of microimages may contain the microfiche unique identifier and the number of fiche in the set in lettering that is readable without magnification. Resolution targets will be placed in this frame. When there is photographic or other graphic material and scale is of importance a full resolution chart and scale will be provided.

c. The third frame of the first row of microimages may contain the security classification of the copied document with lettering that is readable without magnification.

d. The first information area (cover or first page) of the copied document will appear in frame 4 of the first row of microimages, except when frames 2 and 3 are not otherwise used. In those cases, the first information area will appear in frame 2 with succeeding microimages recorded in sequence from left to right and from top to bottom.

e. The index to the copied document is filmed in its sequence within the document. If an additional fiche index is prepared, it will be placed in the last frame of the fiche.

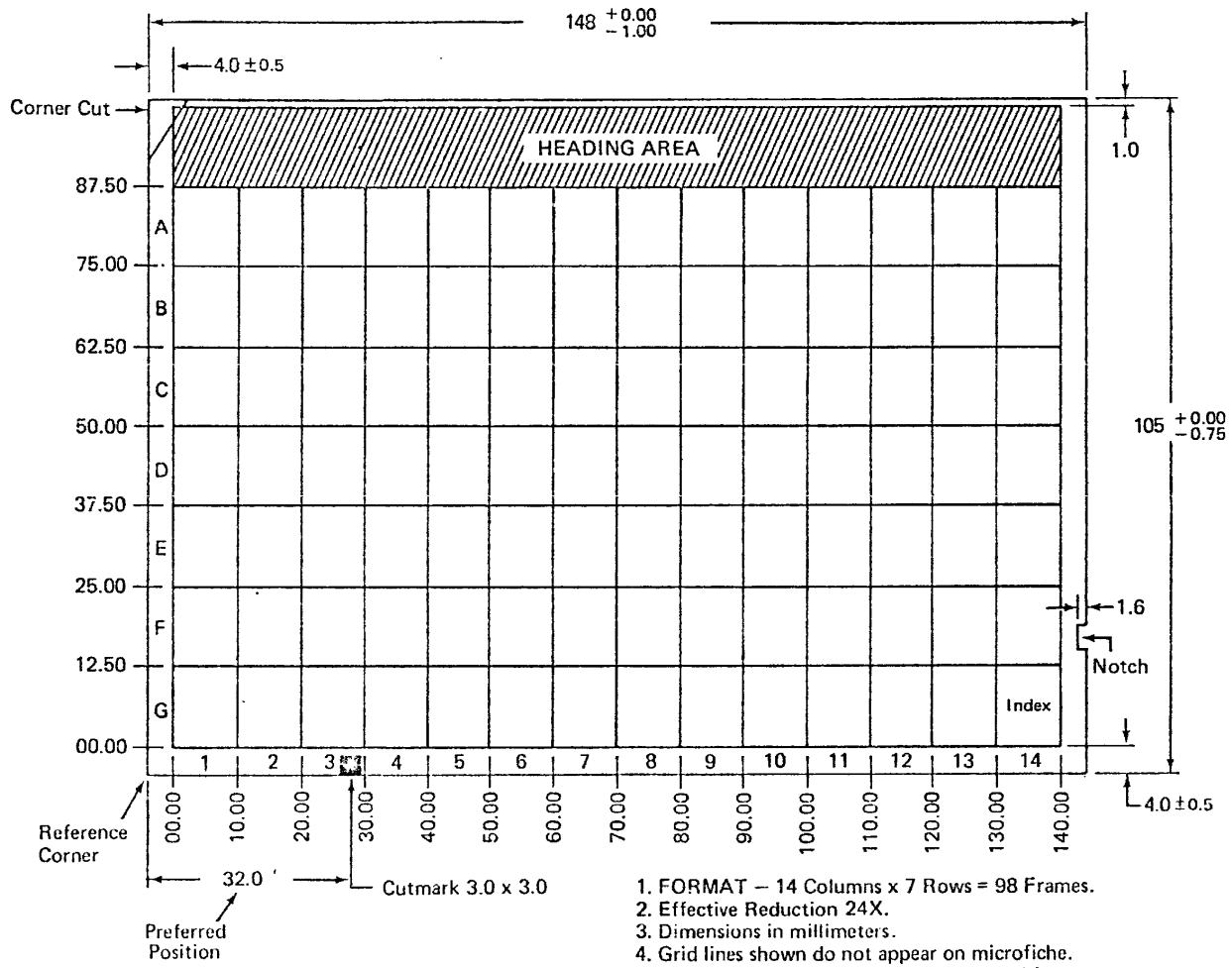
f. If a security classification was used in accordance with the provisions of subparagraph c., above, it will be repeated in the frame immediately following the last frame of the copied document.

g. The last data page or the frame after the last data page will contain the filming data (maintenance date in the case of revised fiche) downgrading instructions in telegraphic abbreviation format and the word "End" (the word "continued" for the first and intermediate fiche in a set) in letters that are readable without magnification.

7. LETTERING: Titling capabilities vary widely from camera to camera, from camera to COM unit, and from COM unit to COM unit. Lettering that allows three lines in the heading (10 points) is preferred. If larger lettering is unavoidable and it is necessary to limit the heading to two lines, document short title, security classification, document long title and microfiche unique identifier are the most important elements in the heading. Lettering smaller than 4.5 point should never be used.

Type 1 24X 8-1/2 x 11 Page Size 98 Frames

NMA Standard MS5, ANSI preferred Standard PH5.9, ISO Standard 2707, Military Standard MIL-M-38748A, COSATI Standard



1. FORMAT – 14 Columns x 7 Rows = 98 Frames.
2. Effective Reduction 24X.
3. Dimensions in millimeters.
4. Grid lines shown do not appear on microfiche.
5. With the notch and corner cut in the positions shown on this drawing the sensitive layer is facing the observer.

Figure 1

Type 6 48X 8-1/2 x 11 Page Size 420 Frames

Appendix to NMA Standard MS2, Appendix to Proposed ANSI Standard PH5.18, ISO Proposed Standard

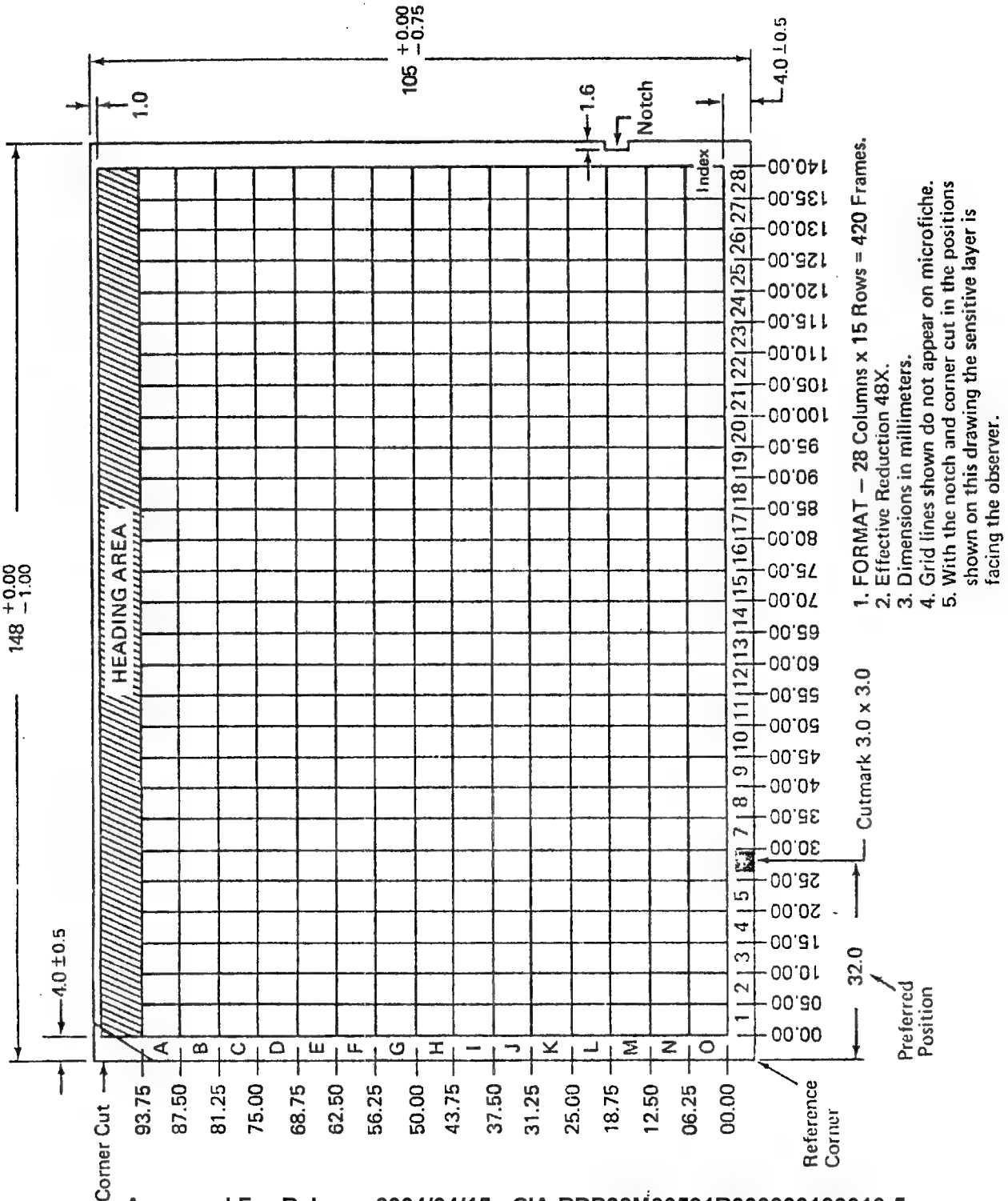


Figure 2

Type 3 24X 11 x 14 Page Size 63 Frames

NMA Standard MS2, ANSI Proposed Standard PH5.18, ISO Proposed Standard

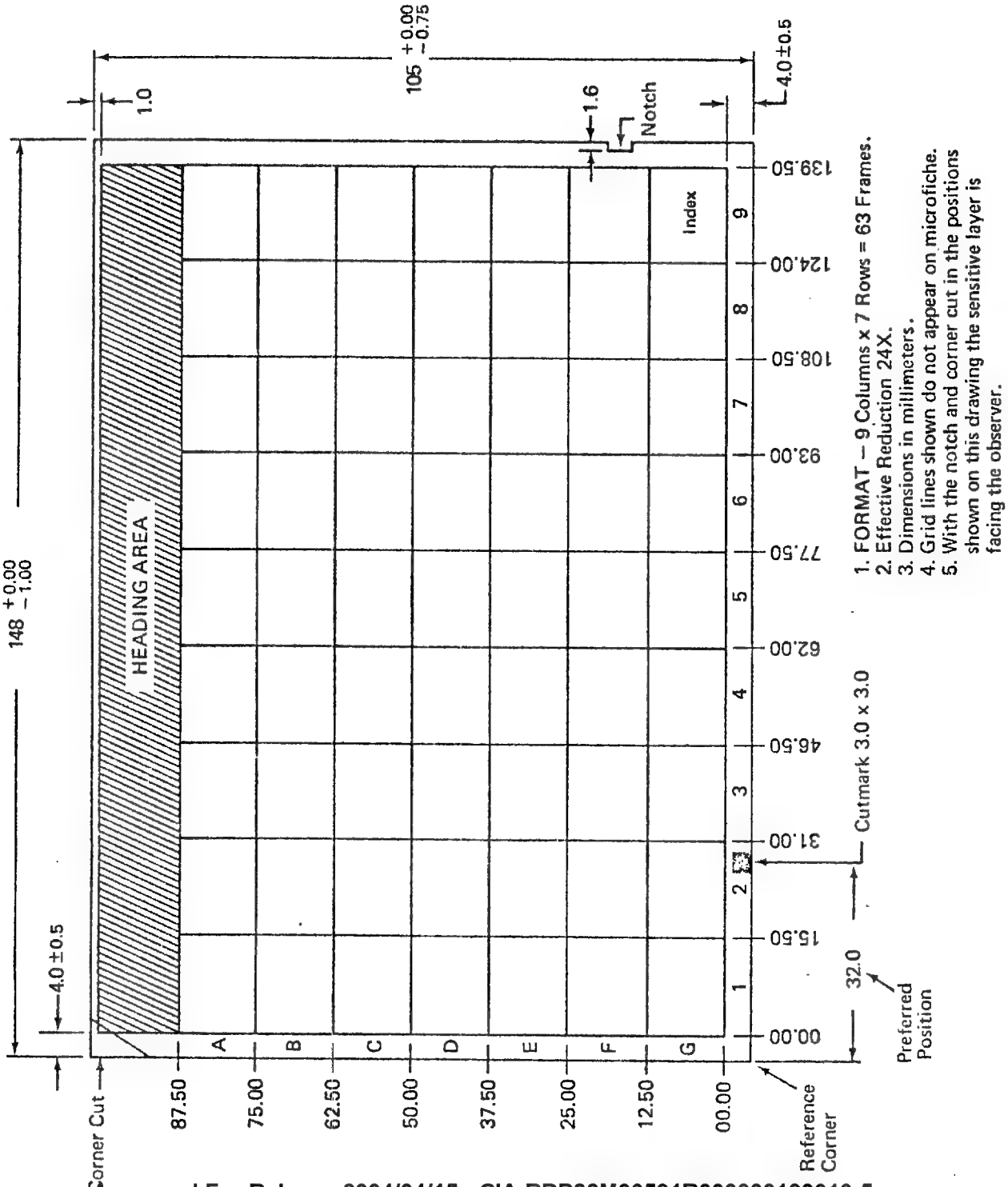


Figure 3

Type 7 48X 11 x 14 Page Size 270 Frames

Appendix to NMA Standard MS2, Appendix to Proposed ANSI Standard PH5.18, ISO Proposed Standard, Military Standard MIL-F-80242

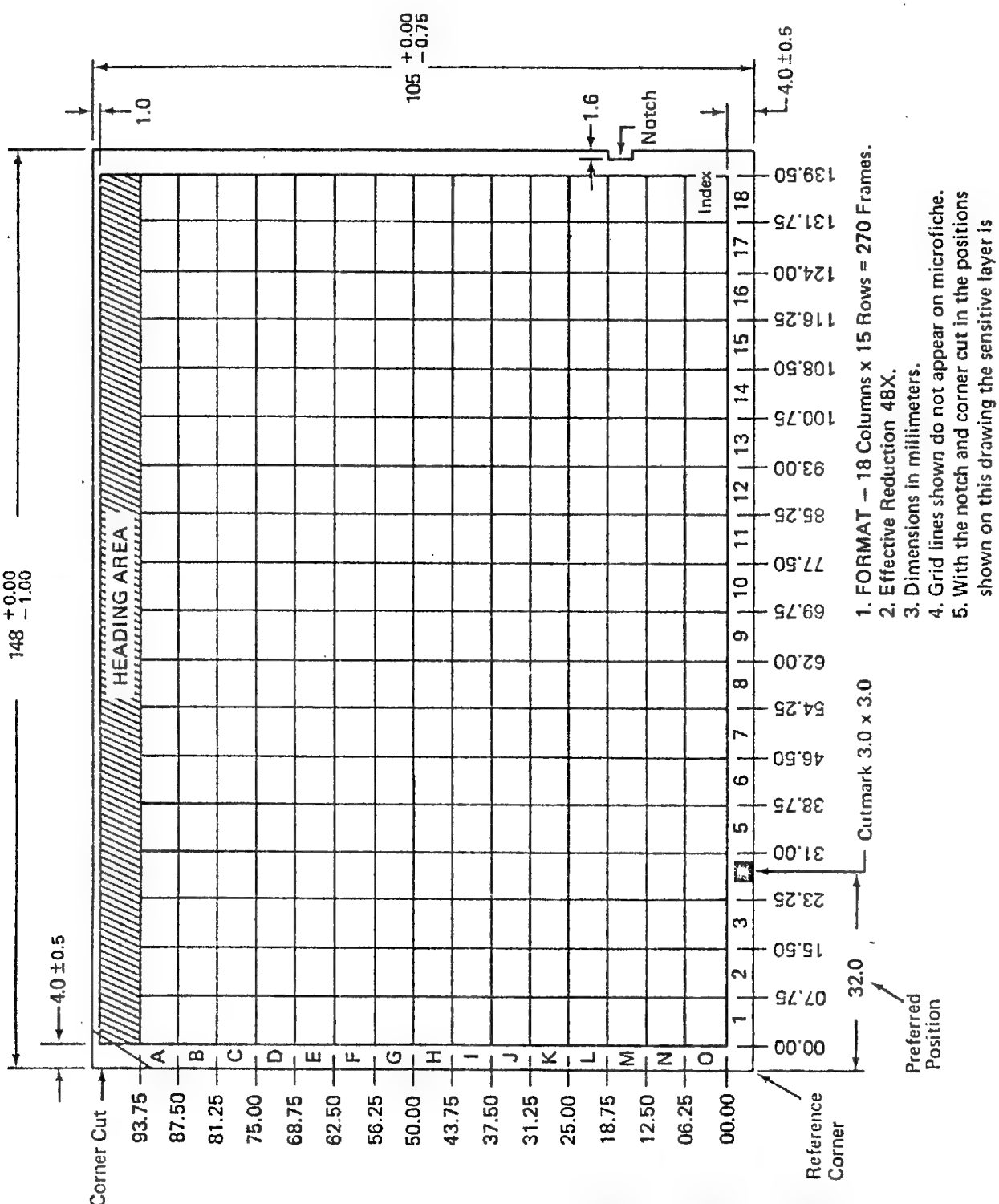
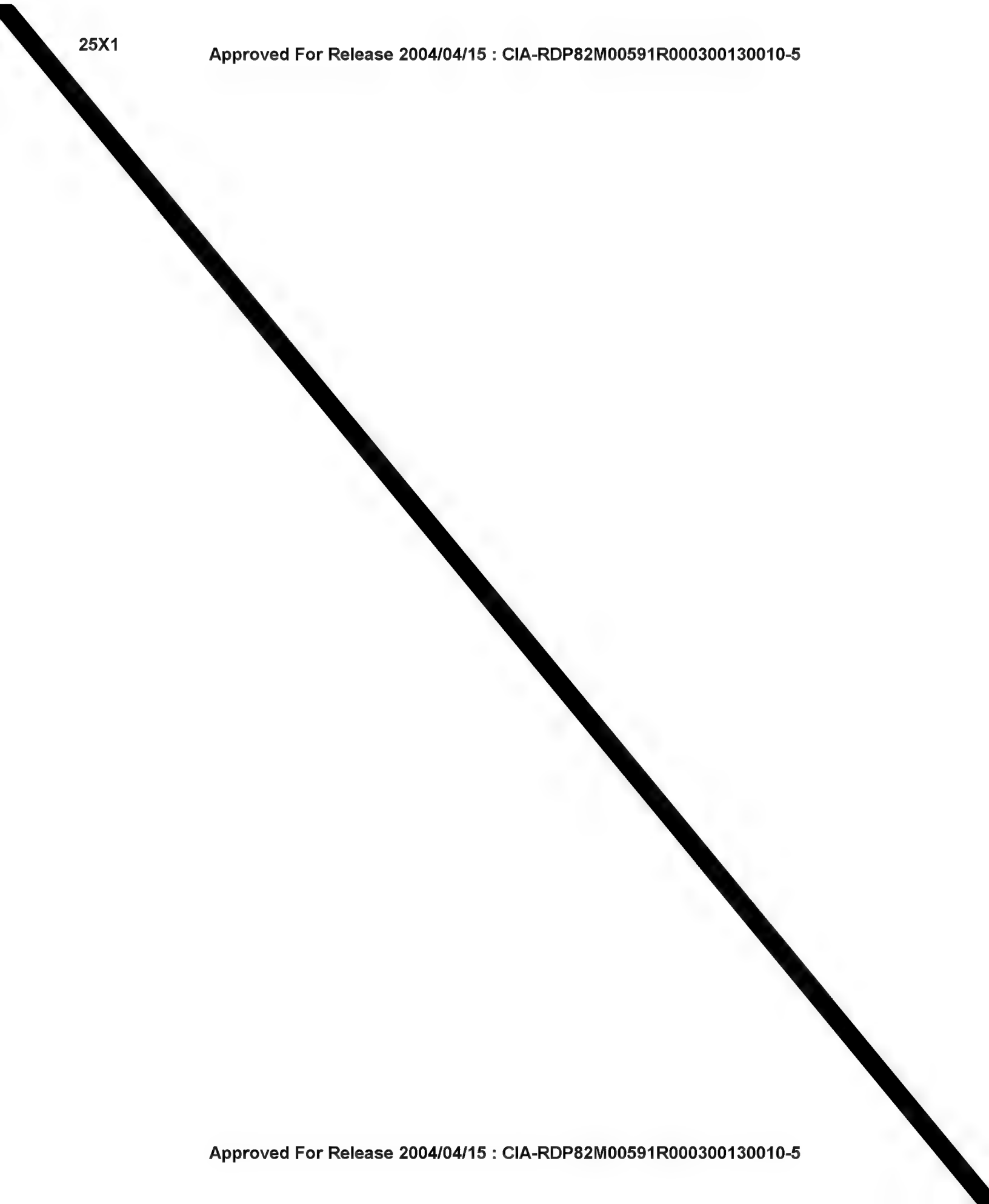


Figure 4



Approved For Release 2004/04/15 : CIA-RDP82M00591R000300130010-5

GLOSSARY

Column. A vertical series of images on a microfiche.

Computer Output Microfilm (COM). Microfilm generated by computer. Normally the data is copied from the cathode ray tube (CRT) on reversal silver film.

Copy. The product obtained from reproducing an original.

Cutting Mark. Mark added to the original film at the time of microfilming to permit automatic cutting of microfiche (sheet of film) from a roll of film.

Density. The degree of opacity of film and the blackness of paper prints.

Diazo Material. Film or paper sensitized by means of diazonium salts, which subsequent to exposure to light strong in the blue to ultraviolet spectrum and development, forms an image. Diazo material produces images of the same polarity, i.e., a positive image will produce a positive image and a negative image will produce a negative image.

Direct Image Film. A film that will retain the same polarity as the previous generation or the original material; that is, tone for tone, black for black, white for white, negative for negative, or positive for positive with conventional processing.

Distribution Copies. Microfilm copies, usually second or third generation produced from camera microfilm or intermediates for distribution to points of use. Copies may be silver, diazo, or vesicular, film.

Document. A written, typed, or printed paper, photograph, or other object to be copied.

Dry Silver Film. A non-gelatin silver film which is developed by application of heat.

Duplicate. A copy usually made by contact printing from a master or an intermediate.

Emulsion. A single or multi-layered coating of gelantinous material on a transparent base carrying radiant energy reactive chemicals that create a latent image upon exposure. Processing techniques produce a final, visible, usable image.

Enlargement. A reproduction larger than the original or the intermediate.

Enlarger-Printer. A machine which projects an enlarged image from microfilm, develops, and fixes the image on a suitable material.

Fiche. Shortened form of term microfiche, which was created by combining micro (meaning little or small) with French word fiche (meaning library index card). Microfiche refers to 20 and 24X reduction; superfiche refers to 42 and 48X reductions; and ultrafiche refers to reduction over 100X.

Film. Any sheet or strip of transparent plastic coated with a light-sensitive emulsion.

Frame. The area of photographic film exposed to light in a camera during one exposure, regardless of whether or not the area is filled by the document image. Frames are 10mm X 12.55mm for 98-frame microfiche.

Generation. Camera film is termed first generation microfilm. Copies made from first generation film are second generation, and copies from second generation are third generation, etc. Arabic numerals are used to indicate the generation while the letters N and P indicate whether the image is negative or positive appearing. Numbers and letters are combined to indicate the generation and the image. Thus 1N is first generation negative, 2P is second generation positive, and 2N is second generation negative.

Graphic. Data in the form of pictorial communications, as for example, drawings, charts, engineering designs, and plotted data.

Grid Gauge. An inspection tool which is used to check the position of images on microfiche.

Gutter. The combined marginal space formed by the two inner margins of confronting pages of a book.

Hard Copy. A paper copy, frequently an enlarged copy from microfilm.

Heading. Inscription placed at the top of the microfiche to identify its contents. It is readable without magnification.

Image. A representative of an object such as a document or other information sources produced by light rays.

Information Area. The area of a document which contains information usually exclusive of the margin.

Intermediate. A microfilm or other reproducible used to make distribution copies; microfilm intermediates are usually made from camera microfilm.

Margin. The non-image area outside the margins of the document but within the frame.

Master. A copy of a document, or in some processes the original itself, from which copies can be made. Sometimes called reproducible master.

Microcopy. A copy obtained by photography in a size to small to be read without magnification.

Microfilm. Film containing an image greatly reduced in size from the original.

Microfiche. A sheet of microfilm containing multiple microimages in a grid pattern. It contains a title which can be read without magnification.

Microform. A generic term for any form, either film or paper, which contains microimages.

Micrographics. The industry which reduces any form of information to a microform.

Microimage. A unit of information, such as a page of text, drawing, or a photograph, too small to read without magnification.

Micropublishing. To publish material in microform.

Negative. A photographic image with light lines, characters, and neutral tones on a dark background.

Original. The document from which copies are produced.

Packed Fiche. Microfiche containing more than one document. Concept involves grouping similar documents to fill available space. Unitized fiche have only one document for each fiche, leaving many frames vacant. Packing is economical but complicates distribution when fiche are disseminated according to contents.

Pagination. A term referring to the the arrangement of pages or images of pages on microfilm.

Polarity. A word used to indicate the change or retention of the dark to light relationship of an image, i.e., a first generation negative to a second generation positive indicates a polarity change while a first generation negative to a second generation negative indicates the polarity is retained.

Positive. A photographic image with dark lines, characters, and neutral tones on a light background.

Print. To produce a reproduction or copy on photographic film or paper.

Processing. The treatment of exposed photographic material to make the latent image visible, e.g., for silver emulsion films, a series of steps consisting of developing, fixing, washing, and drying.

Reduction. A measure of the number of times a given linear dimension of an object is reduced when photographed, expressed as 20X, 24X, or 48X reduction, etc.

Reproducible Master. An intermediate carefully made with minimum resolution loss/density variation from original silver master for reproduction. Emphasis on quality control. Retains polarity if camera microfilm was negative; reverses polarity if camera film was positive (e.g., COM product). Heading backing is omitted for reproduction.

Resolution. The ability of optical systems and photo materials to render visible fine detail of an object; a measure of sharpness of an image, expressed as the number of lines per millimeter, discernible in an image. Resolution in processed microfilm is a function of film emulsion, exposure, camera lens, camera adjustment, camera vibration, and film processing. Resolution is measured by examining a microfilmed resolution test chart under a microscope to determine the smallest pattern in which lines can be distinguished both horizontally and vertically.

Row. A horizontal series of microimages on microfiche.

Set. Two or more microfiche containing one unit of information. Lengthy documents require multiple fiche. When documents are unitized, the fiche should be clearly marked as to the number in the set; e.g., 1 of 1, 1 of 4, 4 of 4.

Silver Film. A film which is coated with a silver halide emulsion.

Trailer Microfiche. When a document is microfilmed on microfiche and the total number of pages exceeds the image area capacity of a single microfiche, the succeeding images are recorded on additional microfiche called "trailer microfiche."

Unitize. To microfilm each unit of information, such as each report or publication, on separate microfiche or separate sets of microfiche.

Vesicular Film. Film with the light sensitive element suspended in a plastic layer and which upon exposure creates strains within the layer in the form of a latent image. The strains are released and the latent image made visual by heating the plastic layer. The image becomes permanent when the layer cools. Vesicular film is reversing, producing a negative image from a positive image.

Viewer. A projection device for viewing an enlarged microimage with the unaided eye. Sometime called a reader.

Viewer-Printer. A machine which combines the functions of a viewer and an enlarger-printer. Sometimes called a reader-printer.

Selected Background Material

"Emulsion Side of Photographic Sheet Film Designation of," American National Standard Institute standard PH1.19-1974

"Film, Microfiche, 48X," Military Specification MIL-F-80242

"Format and Coding of Computer Output Microfilm," National Micrographics Association Standard MS2-1971

"Glossary of Micrographics," National Micrographic Association Standard MS100-1971

"Government Printing and Binding Regulations," Joint Committee on Printing, Oct 1974 No. 23

"Information Security Program Regulation," Department of Defense Directive 5200.1-R

"Inspection and Quality Control of First Generation Silver Halide Film," National Micrographics Association Standard MS104-1972

"Microfiche of Documents," National Micrographics Association Standard MS5-1975

"Microfiche of Documents," American National Standards Institute, ANSI PH5.9-1975

"Microfiche for Engineering/Technical Data Reports, Studies, and Related Data, Requirements for," Military Specification MIL-M-38748A

"Microfiche Standards and Responsibilities," Defense Intelligence Agency Regulation 59-3, 29 Jan 1976

"Microfilming," Amendment B-21 of 3 Feb 1972 and B-33 of 22 Mar 1976, Sup. part 101-11.5, Federal Property Management Regulation 101-11-5

"Microfilming," State Department Foreign Affairs Manual, para 446

"Microform Formats," Military Standard 399A

"Microform Systems Management," National Security Agency/ Central Security Service Circular 112-1, 5 December 1974

"Microphotography," Central Intelligence Agency Headquarters Regulation 70-3, para 3

"Operational Procedures for the Production of Microforms," National Micrographics Association Standard MS110-1974

"Quality Standards for Computer Output Microfilm," National Micrographics Association Standard MS1-1971

"Safety Photographic Film, Specifications for," American National Standards Institute standard PH1.25-1975.

"Standardization Policies, Procedures, and Instructions," Department of Defense Standardization Manual 4120-3M

"User's Guide to Standard Microfiche Formats," National Micrographics Association Standard RS14-1975